REMARKS

No amendment is made at this time. Applicant respectfully requests reconsideration of the application in view of the following remarks.

Rejection of Claims 1, 3-5, 7-14 Under 35 U.S.C. § 102 (b) or § 103(a)

Claims 1, 3-5, 7-14 have been rejected under 35 U.S.C. § 102(b) as being anticipated by or, alternatively, under 35 U.S.C. § 103(a) as being obvious over Winiker (5032226) as evidenced by Alfrey, Jr. et al ("Amphoteric Polyelectrolytes. II. Copolymers of Methacrylic Acid and Diethylaminoethyl Methacrylate" J.Am. Chem. Soc., v.74 (1952) pp438-441) and Alfrey, Jr.et.al ("Preparation and Titration of Amphoteric Polyelectrolytes" J. Polymer Sci., v 23 (1957) pp.533-547).

Claim 1 recites: "which [amphoteric polyacrylamide] has an electric charge of 2.0 m-equivalent/g or less and a positive potential at pH 2 and has an electric charge of 2.0 m-equivalent/g or less and a negative potential at pH 12."

The Examiner states: "Winiker does not disclose the electric charge or potential of the copolymer as a function of pH. *** Alfrey, Jr. et al (J. Polymer Sci.) discloses titrations of several copolymers of containing from 27 to 88 mole percent of dialkylaminoethyl(meth)acrylate with the remainder being (meth)acrylic acid (pp 534, 536 and 537). At a pH of 2, the electric charge for the titrated copolymers ranged from 2 to between 5 and 6 meq/gm and at a pH of 12, the electric charge ranged from 1 to 6 meq/gm."

Further, the Examiner states: "If the copolymers disclosed by Alfrey, Jr. et al were diluted to contain 60 to 95% (meth)acrylamide monomers, the electric charge would be reduced to less than 2 meq/gm at pH values of 2 and 12. Thus the amphoteric polyacrylamide of Winiker would inherently possess, or it would have been obvious to one of ordinary skill in the art to obtain, the claimed electric charge at a pH of 2 and 12."

Applicant respectfully traverses this rejection.

According to the Examiner, the electric charge of the amphoteric polyacrylamide of Winiker can be calculated at **0.1** (2 x 0.05) to between **2** (5 x 0.4) and **2.4** (6 x 0.4) meq/gm at a pH of 2 and **0.05** (1 x 0.05) to **2.4** (6 x 0.4) meq/gm at a pH of 12. Thus, the electric charge of

the amphoteric polyacrylamide of Winiker would exceed 2 meq/gm at pH 2 and 2 meq/gm at pH 12.

It is well settled that to establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and inherency may not be established by probabilities or possibilities. *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) Thus, the mere fact that the electric charge of the amphoteric polyacrylamide of Winiker is probably or possibly 2 meq/gm or less at pH 2 and 2 meq/gm or less at pH 12 is not sufficient to establish inherency.

Further, the electric charge of the amphoteric polyacrylamide is 2 meq/gm or less at pH 2 and 2 meq/gm or less at pH 12 cannot be *prima facie* obvious over Winiker.

First, a particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) Winiker uses amphoteric polyacrylamides for structural strength and flocculation-suppressing properties. Column 3, line 61-65. In contrast, the specification of the present application states:

> The researchers have found that the polyacrylamides that improve the paper strength or a bulky paper without affecting its density and also cause the paper to manifest good optical characteristics contain both anionic groups and cationic groups in small quantities (emphasis added). Page 3 lines 5-7

Winiker's flocculation-suppressing properties are different from or unrelated to bulkiness without affecting its density and good optical characteristics such as opacity and brightness, and Winiker does not recognize these effects. Winiker does not recognize that the electric charge of 2 meq/gm or less at pH 2 and pH 12 could achieve bulkiness without affecting its density and good optical characteristics such as opacity and brightness.

Second, the *prima facie* case of obviousness can effectively be rebutted as shown in the specification. In the claimed invention, by using the polyacrylamide having an electric charge of **2.0 m-equivalent/g or less at pH 2 and** having **an electric charge of 2.0 m-equivalent/g or less at pH 12** on the average, papers obtained exhibit better breaking length, higher opacity and brightness, and good optical characteristics, without showing any increase in density, compared with papers using polyacrylamides of higher electric charges. The above cannot be reasonably

expected from any of the references, alone or combined. The instant specification clearly shows the above surprising effects as shown below (see also Tables 1-6 in the instant specification).

<Examples 1-7, Comparative Examples 1-4>

Paper-strengthening agent	Electric charge at pH2 (m-equivalent/g)	Electric charge at pH12 (m-equivalent/g)	Density (g/cm^3)	Breaking length (km)	Hunter brightness (%)	Hunter opacity (%)
PAM-01	**0.49**	**1.29**	0.522	3.32	84.6	85.4
PAM-02	**0.72**	**1.73**	0.522	3.31	84.5	85.5
PAM-03	**0.44**	**1.09**	0.520	3.32	84.4	85.5
PAM-04	**0.89**	**0.99**	0.521	3.25	84.5	85.4
PAM-05	**1.33**	**1.07**	0.522	3.28	84.3	85.6
PAM-06	**0.97**	**1.35**	0.523	3.20	84.4	85.4
PAM-07	**1.11**	**1.80**	0.523	3.25	84.4	85.3
PAM-08	**0.74**	2.20	0.530	3.10	84.0	84.8
PAM-09	2.17	2.39	0.533	3.13	84.0	84.9
PAM-10	**1.07**	2.01	0.531	3.12	83.9	84.8
PAM-11	-	2.14	0.530	3.16	84.0	84.9

<Examples 8-14, Comparative Examples 8-11>

Paper-strengthening agent	Electric charge at pH2 (m-equivalent/g)	Electric charge at pH12 (m-equivalent/g)	Density (g/cm^3)	Breaking length (km)	Hunter brightness (%)	Hunter opacity (%)
PAM-01	**0.49**	**1.29**	0.552	1.20	94.3	96.0
PAM-02	**0.72**	**1.73**	0.553	1.19	89.6	95.8
PAM-03	**0.44**	**1.09**	0.548	1.21	88.9	96.3
PAM-04	**0.89**	**0.99**	0.554	1.18	89.5	96.0
PAM-05	**1.33**	**1.07**	0.552	1.17	89.6	95.9
PAM-06	**0.97**	**1.35**	0.553	1.07	95.0	95.8
PAM-07	**1.11**	**1.80**	0.554	1.07	94.9	95.9
PAM-08	**0.74**	2.20	0.575	1.24	95.1	94.2
PAM-09	2.17	2.39	0.565	1.25	95.0	94.9
PAM-10	**1.07**	2.01	0.570	1.20	95.1	95.0
PAM-11	-	2.14	0.571	1.18	95.2	95.1

<Examples 15-21, Comparative Examples 15-18>

Paper-strengthening	Electric charge at	Electric charge at	Density (g/cm^3)	Breaking length	Hunter brightnes	Hunter opacity

agent	pH2 (m-equivalent/g)	pH12 (m-equivalent/g)		(km)	s (%)	(%)
PAM-01	**0.49**	**1.29**	0.509	3.01	85.9	85.7
PAM-02	**0.72**	**1.73**	0.510	2.98	85.8	85.5
PAM-03	**0.44**	**1.09**	0.507	3.02	85.8	85.7
PAM-04	**0.89**	**0.99**	0.510	3.00	85.7	85.6
PAM-05	**1.33**	**1.07**	0.510	2.99	85.7	85.5
PAM-06	**0.97**	**1.35**	0.521	2.86	85.2	85.3
PAM-07	**1.11**	**1.80**	0.518	2.87	85.4	85.4
PAM-08	**0.74**	2.20	0.530	2.68	84.7	84.8
PAM-09	2.17	2.39	0.538	2.70	85.0	84.9
PAM-10	**1.07**	2.01	0.531	2.71	84.8	83.8
PAM-11	-	2.14	0.545	2.62	84.9	84.9

<Examples 22-28, Comparative Examples 22-25>

Paper-strengthening agent	Electric charge at pH2 (m-equivalent/g)	Electric charge at pH12 (m-equivalent/g)	Density (g/cm^3)	Breaking length (km)	Hunter brightness (%)	Hunter opacity (%)
PAM-01	**0.49**	**1.29**	0.549	4.10	84.9	86.0
PAM-02	**0.72**	**1.73**	0.552	4.09	84.8	85.9
PAM-03	**0.44**	**1.09**	0.550	4.10	84.8	85.9
PAM-04	**0.89**	**0.99**	0.552	4.08	84.9	86.0
PAM-05	**1.33**	**1.07**	0.553	4.05	84.9	85.8
PAM-06	**0.97**	**1.35**	0.551	4.07	84.7	85.9
PAM-07	**1.11**	**1.80**	0.551	4.05	84.8	85.8
PAM-08	**0.74**	2.20	0.555	3.97	84.6	85.7
PAM-09	2.17	2.39	0.560	3.98	84.7	85.2
PAM-10	**1.07**	2.01	0.561	3.95	84.5	85.0
PAM-11	-	2.14	0.559	3.84	84.2	85.1

As shown above, by using the polyacrylamide having an electric charge of **2.0 m-equivalent/g or less at pH 2 and** having **an electric charge of 2.0 m-equivalent/g or less at pH 12** on the average, papers obtained exhibit better breaking length, higher opacity and brightness, and good optical characteristics, without showing any increase in density, compared with papers using polyacrylamides of higher electric charges. Winiker does not teach or suggest the specific ranges of electric charges at pH 2 and pH 12. Alfrey, Jr. et al are unrelated to polyacrylamide.

Thus, not all limitations of claim 1 are taught or suggested by Winiker and Alfrey, Jr. et al. Accordingly, claim 1 cannot be *prima facie* obvious over Winiker and Alfrey, Jr. et al, alone or combined, or a *prima facie* case of obviousness is effectively rebutted. At least for this reason, the remaining dependent claims also cannot be obvious over Winiker and Alfrey, Jr. et al, alone or combined. Applicant respectfully requests withdrawal of this rejection.

Rejection of Claims 2 and 6 Under 35 U.S.C. § 102 (b) or § 103(a)

Claims 2 and 6 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Winiker in view of Tashiro and Schade.

Claims 2 and 6 are dependent ultimately from claim 1. Tashiro and Schade are irrelevant to the features recited in claim 1, and thus, claim 1 cannot be obvious over Winiker, Tashiro, and Schade. At least for this reason, claims 2 and 6 cannot be obvious over the above references.

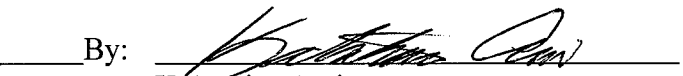
CONCLUSION

In light of the Applicant's amendments to the claims and the foregoing Remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: January 5, 2007 By: 

Katsuhiro Arai
Registration No. 43,315
Attorney of Record
Customer No. 20,995
(949) 760-0404

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